

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/542,866

REMARKS

Claims 1-25 are all the claims pending in the application. Claims 1-20 are withdrawn from consideration as being drawn to a non-elected invention. Claims 21-24 presently stand rejected. Applicant adds claim 25 to further define the invention as discussed in detail below.

Applicant filed Formal Drawings in the present application on June 14, 2000. The Examiner is respectfully requested to acknowledge receipt and indicate approval of the Formal Drawings in the next communication from the office.

The Abstract of the Disclosure is objected to. Applicant amends the Abstract to overcome the objections.

Claims 21-24 are rejected under 35 U.S.C. § 102(b) as being anticipated by Takahashi et al. (4,994,658).

Analysis

Claim 21 is directed to a shutter opening/closing mechanism with a shutter plate. The shutter plate moves between a first position where the card transporting path is closed, and a second position where the card transporting path is opened. Due to the structure of the claimed invention, foreign material, i.e., a card trap member, can easily be detected to thereby protect the card reader.

An embodiment of the shutter opening/closing mechanism of the present invention is illustrated in Figs. 28-31. A drive source (503) is provided for moving the shutter plate (502). A connecting member (504) is provided for connecting a drive force of the drive source (503) to the shutter plate (502). An opening/closing side end face (502a) of the shutter plate (502) is

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closed substantially parallel to the card transporting path (519) at the closing position, and the end face (502a) is moved by the drive source, substantially parallel to the card transporting path (519).

Thus, the side end face is substantially parallel to the card transporting path, whether the shutter plate is in the open or closed position. This construction provides an improvement over the prior art (Fig. 34), wherein the shutter plate, for opening and closing the card transporting path, moves at an angle with respect to the transporting path, i.e., rotates about an axis to the side of the path.

Takahashi relates to an optical card convey system which is quite different in the technical field from the present invention. The Examiner asserts that the carriage 20 is the “shutter plate”. However, the carriage 20 of Takahashi is not related to the shutter plate of the present invention. The carriage 20 does not move to close and open a card transporting path. Instead, the carriage 20 conveys the card on the feeding mechanism 10.

As mentioned above, the present invention relates to the shutter mechanism for opening/closing the card insertion slot. The structure of the shutter mechanism is advantageous because it facilitates the prevention of criminal or other mischievous behavior against the card reader. Since the end face of the shutter plate is positioned substantially parallel to the card transporting path (Fig. 28), the opening and closing of the shutter plate is quicker, requires a smaller solenoid, and evenly covers the card entrance. Thus, the performance of detecting and preventing the insertion of a foreign material, i.e., card trap member, is improved.

In view of the foregoing, claim 1 is not anticipated by Takahashi.

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The remaining rejections are directed to claims 22-24. Applicant respectfully submits that these claims are patentable for at least the same reasons as claim 21, by virtue of their dependency therefrom.

In addition, Applicant adds claim 25 to further define the invention. In particular, the present invention provides for detection of a card trap member (foreign material) by the use of a detecting part of the slide lever and a micro switch. When foreign material exists, the shutter plate can not move to the closed position. Then the micro switch can not turn on. After that, a signal is transmitted to the host device or the like, and the host device controls to activate the alarm, to stop the device or the like. This feature is discussed on page 55, lines 6-14, for example.

Claim 25 is patentable for at least the same reasons as claim 1, by virtue of its dependency therefrom. Moreover, this claim is patentable for the reasons discussed above because the cited reference fails to teach or suggest this detection system for foreign material.

Conclusion

In view of the foregoing, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to contact the undersigned at the telephone number listed below.

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Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,



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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The specification is changed as follows:

Page 1, paragraph 3:

The present invention relates to a shutter opening/closing mechanism. More particularly, the invention relates to a shutter opening/closing mechanism adaptable for the opening and closing [an] of a card entrance of a card reader (writer).

Page 2, paragraph 1:

The card transporting mechanism suffers from the following problems to be solved, however. In the transporting mechanism, the card table is moved and the engaging/holding member slides on the tapered surface. During the course of the sliding of the engaging/holding member, it gradually holds the card on the card table. Because of this structure, the card must be moved by use of a take-in roller or the like [till] until the card is firmly held, so as not to shift a position of the card relative to the moving card table from its correct position. Actually, it is very difficult to make a moving speed of the card table to be equal exactly to a feeding speed of the roller[, however]. Where a difference between those speeds becomes large, [scraping, grading of] the taken-in roller will be scraped or ground, and the card will come off.

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Page 5, paragraph 2:

Since the shutter plate 5103 is turned about the support shaft 5102, a necessary stroke quantity is secured at a location near the support shaft 5102 of the shutter plate 5103, it is necessary to increase a stroke quantity at a location apart from the support shaft 5102. Therefore, a large solenoid must be used for the solenoid 5104. When a user quickly inserts a card into the card reader, the card sometimes hits the shutter plate 5103. In order to reliably open the shutter plate 5103 when the card hits the shutter plate 5103 at a location apart from the support shaft 5102, it is necessary to increase the output of the solenoid [6104] 5104. This necessitates a large solenoid 5104.

Page 32, paragraph 2:

The operation of the card discharging mechanism thus far described is that when the mechanism is normal. There is a case where when the card is greatly deformed or soiled, the card is transported not normally. After the card has been into the card entrance, it is impossible to take out the inserted card. In this case, the card is forcibly discharged. The description to follow is elaboration of an operation of the card transporting mechanism for forcibly discharging the card. When a greatly deformed or soiled card or a card of which the normal transportation is impossible is inserted through the card entrance 230, such a card stays in the card transporting path inside the card entrance. The magnetic head 240 located near the card entrance 230 detects the incoming card, but the sensor located within the card sensor located in the card reader cannot detect the card [till] until it reaches a card sensor position. To cope with[, in] a case that the

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magnetic head 240 located near the card entrance 230 detects a card, but another sensor does not detect the card after a predetermined time elapses after the card insertion, or that another sensor (not shown) outputs a signal and its outputting state continues for a predetermined time, it is judged that the card stays at the card entrance, and an abnormal detecting signal indicative of the staying [the] card is output.

Page 35, paragraph 3:

In the embodiment shown in Figs. 14 to [18] 16, the carriage 270 is moved to the inner part of the card reader, and its moving direction is reversed to move the card toward the card entrance, whereby a card staying on the card transporting path is forcibly discharged by the engaging pieces 254 and 255 of the pawl member 243 for card transportation.

Page 55, paragraph 2:

The card 501 is inserted through [an] a card entrance 516. The pre-heated 515 detects the insertion of the card entrance 516, and the solenoid 503 is turned on. The solenoid 503 pulls the spring pin 510 while resisting a spring force of a return spring 517, to cause the slide lever 505 to slide in a direction [A] of an arrow A in Fig. 28. Accordingly, the shaft 521 fixed to the slide lever 505 moves within the inverse L shaped hole 506a, hits the contact portion 513 to move it forward, and turns the swing arms 506 in a direction [B] of an arrow B. As a result, the shutter plate 502 is lifted and moved to the [closing] opening position, the card entrance 516 (card transporting path 519) is opened as indicated by a two-dot chain line in Fig. 28. At this time, the

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swing arms 506 likewise [raises] raise both ends of the shutter plate 502, so that the opening/closing side end face 502a of the shutter plate 502 moves substantially parallel to the card transporting path 519.

IN THE CLAIMS:

Claim 25 is added as a new claim.

IN THE ABSTRACT OF THE DISCLOSURE:

The abstract is changed as follows:

A card transporting mechanism for a card reader is provided. [in which the] The trailing end of a card, as viewed in a card transporting direction, is brought into contact with a first card engaging/holding member moving in [a] the card transporting direction, and the card is transported by [said] the first card engaging/holding member[, said] . The card transporting mechanism [including] includes a carriage movable in the card transporting direction, [said] and the first card engaging/holding member [being] is mounted [on such] so that [said] the first card engaging/holding member is movable between a first position where [said] the first card engaging/holding member comes in contact with the trailing end of [said] the card and a second position where [said] the first card engaging/holding member does not comes in contact with [said] the card[, and a] . A transportation drive member[,] is provided for transporting the card .[, coupled to said first card engaging/holding member such that a position of said first card engaging/holding member changes in accordance with a moving direction of said transportation drive member, and when said card travels in a first direction, said first card engaging/holding

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member is located, by said transportation drive member, at a position where said first card engaging/holding member comes in contact with the trailing end face of said card, and said card is transported by moving said carriage.]